

# MATERIAL SAFETY DATA SHEET



## LORSBAN\* 4E INSECTICIDE (NAF 163)

Emergency Phone: 800-992-5994  
Dow AgroSciences • Indianapolis, IN 46268

Effective Date: 01/01/98  
Product Code: 47602  
MSDS: 005688

### 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT:** LORSBAN\* 4E INSECTICIDE (NAF 163)

#### COMPANY IDENTIFICATION:

Dow AgroSciences  
P.O. Box 681428  
9330 Zionsville Road  
Indianapolis, IN 46268-1189  
www.dowagro.com

### 2. COMPOSITION/INFORMATION ON INGREDIENTS:

O,O-diethyl O-(3,5,6-trihydroxy-2-pyridinyl)  
phosphorothioate, (chlorpyrifos) CAS# 002921-88-2 44.9%  
Other Proprietary Ingredients, total, including: 55.1%  
Xylene-range aromatic solvent CAS# 064742-95-6

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

### 3. HAZARDOUS IDENTIFICATIONS:

#### EMERGENCY OVERVIEW

Hazardous chemical. Red liquid with solvent-type odor. May cause moderate eye irritation and corneal injury. Prolonged or repeated skin exposure may cause severe irritation or burn. Excessive exposure may produce organophosphate type cholinesterase inhibition. Toxic to fish and aquatic organisms. Product undergoes exothermic decomposition at approximately 130°C; solvent will burn.  
**EMERGENCY PHONE NUMBER:** (U.S.) 800-992-5994

**POTENTIAL HEALTH EFFECTS:** This section includes possible adverse effects which could occur if this material is not handled in the recommended manner.

**EYE:** May cause moderate eye irritation which may be slow to heal. May also cause moderate (temporary) corneal injury. Vapors may irritate eyes.

**SKIN:** Prolonged or repeated exposure may cause severe irritation, even a burn. A test in guinea pigs indicated that this product may have weak skin sensitization potential. However, experiences in the manufacturing and use of this product have not provided evidence for sensitizing properties. Furthermore, the product did not sensitize human subjects when tested at an end-use dilution. A single prolonged exposure may result in material being absorbed in harmful amounts. The LD50 for skin absorption in male rats is 900 mg/kg.

**INGESTION:** Single dose oral toxicity is low. The oral LD50 for male and female rats is 940 and 530 mg/kg, respectively. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. If aspirated (liquid enters the lung), may cause lung damage or death due to chemical pneumonia.

**INHALATION:** The LC50 for female rats is 2.2 mg/L for 4 hours. Excessive exposure may produce organophosphate-type cholinesterase inhibition. Excessive vapor concentrations of solvents are attainable and could be hazardous on single exposure. Excessive exposure to xylene solvent may cause respiratory irritation and central nervous system depression. Signs and symptoms of central nervous system depression, are in order of increasing exposure, headache, dizziness, drowsiness, and incoordination.

#### SYSTEMIC (OTHER TARGET ORGAN EFFECTS):

Excessive exposure may produce organophosphate-type cholinesterase inhibition. Signs and symptoms of excessive exposure to chlorpyrifos may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions. Chlorpyrifos produced mild adrenal effects when fed to rats, but only at doses that greatly exceeded any exposures that would be received during normal use of this product. Xylene, a component of this mixture, is reported to have caused hearing loss in laboratory animals upon inhalation of high concentrations; such effects have not been reported in humans. Xylene has also been reported to have caused liver, kidney lung, and blood effects at high exposure levels. Observations in animals include cataracts in rats exposed to solvent vapors.

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**CANCER INFORMATION:** Chlorpyrifos did not cause cancer in long-term animal studies.

**TERATOLOGY (BIRTH DEFECTS):** Chlorpyrifos did not cause birth defects in laboratory animals. Solvent was toxic to the fetus in laboratory animal tests, but only at doses that were toxic to the mothers. Very high concentrations of solvent (producing severe toxicity to adult animals) induced an increase in cleft palate in mice, which is a common developmental abnormality in mice and is associated with stress to the maternal animals; no malformations were induced at exposures less than those causing severe toxicity to the adult animals. Ethylbenzene has caused birth defects in laboratory animals and has been toxic to the fetus in laboratory animals at doses nontoxic to the mother.

**REPRODUCTIVE EFFECTS:** Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals. In a 3-generation reproduction study on the solvent, the only effects observed were at exposures that produced severe toxicity to the parent animals.

### 4. FIRST AID:

**EYES:** Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

**SKIN:** Immediately wash with plenty of soap and water. Consult medical personnel. Remove contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes and other contaminated leather articles such as belts and watchbands.

**INGESTION:** Do not induce vomiting. Contains aromatic petroleum solvent. Call a physician or poison control center immediately. Do not give anything by mouth to an unconscious person.

**INHALATION:** Remove to fresh air if symptoms of cholinesterase inhibition appear and get medical attention immediately.

**NOTE TO PHYSICIAN:** Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration.

The decision of whether to induce vomiting or not should be made by an attending physician. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

### 5. FIRE FIGHTING MEASURES:

**FLASH POINT:** 106°F, 41°C

**METHOD USED:** TCC

**FLAMMABLE LIMITS**

LFL: 1%

UFL: 6% (xylene range aromatic solvent)

**EXTINGUISHING MEDIA:** Foam, CO<sub>2</sub>, dry chemical

**FIRE & EXPLOSION HAZARDS:** Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic, irritating gases may be formed under fire conditions. Rapid decomposition above 320-392°F (160-200°C) can occur. Violent rupture due to over-pressurization may occur at temperatures generated during a fire.

**FIRE-FIGHTING EQUIPMENT:** Use positive-pressure self-contained breathing apparatus and full protective clothing.

### 6. ACCIDENTAL RELEASE MEASURES:

(See Section 15 for Regulatory Information)

**ACTION TO TAKE FOR SPILLS/LEAKS:** Absorb spills with inert absorbent material such as dry sand. Thoroughly wash body areas which come into contact with this product. Contain spill to keep out of sewers. For large spills, consult manufacturer.

### 7. HANDLING AND STORAGE:

**SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING**

**AND STORAGE:** Do not get in eyes, on skin or on clothing. Avoid breathing vapor and spray mist. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. For handling relative to the end-use of this product, read the product label for further information concerning the use of personal protective equipment (PPE) under the Worker Protection Standard of 1993. Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides and fertilizers. Do not store above 100°F for extended periods of time. Storage below 20°F may result in the formation of crystals.

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If product crystallizes, store at 50-70°F and agitate to redissolve crystals.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

These precautions are suggested for conditions with a high potential for exposure. If handling procedures are such that there is only a low potential for exposure, less protection may be needed. Emergency conditions may require additional precautions.

**EXPOSURE GUIDELINE(S):** Chlorpyrifos: ACGIH TLV and OSHA PEL are 0.2 mg/m<sup>3</sup>, Skin. ACGIH classifies as A4. Xylene: ACGIH TLV and OSHA PEL are 100 ppm TWA, 150 ppm STEL. ACGIH classifies as A4. PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

**ENGINEERING CONTROLS:** Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

**RESPIRATORY PROTECTION:** Atmospheric levels should be maintained below the exposure guidelines. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying or positive-pressure supplied-air respirator, depending on the potential airborne concentration. For emergency and other conditions where the exposure guideline may be greatly exceeded, use a NIOSH approved positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.

**SKIN PROTECTION:** Use protective clothing impervious to this material. Selection of specific items such as faceshield, gloves, boots, apron or full body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse. Contaminated leather items, such as shoes, belts and watchbands should be removed and destroyed.

**EYE PROTECTION:** Use chemical goggles. If vapor exposure causes eye discomfort, use a full-face respirator.

**NOTE:** Applicators and other handlers (users) must wear protective eyewear.

### 9. PHYSICAL AND CHEMICAL PROPERTIES:

**BOILING POINT:** 290°F, 143°C (solvent)  
**VAPOR PRESSURE:** <10 mmHg @ 25°C  
**VAPOR DENSITY:** Not determined  
**SOLUBILITY IN WATER:** Emulsifiable  
**SPECIFIC GRAVITY:** 1.079  
**APPEARANCE:** Red liquid  
**ODOR:** Solvent-type odor

### 10. STABILITY AND REACTIVITY:

**STABILITY:** (CONDITIONS TO AVOID) Avoid heating above 50°C (122°F). Chlorpyrifos undergoes exothermic decomposition at approximately 130°C (266°F) which can lead to higher temperatures and violent decomposition if generated heat is not removed. Contains petroleum derivative solvent - will burn.

**INCOMPATIBILITY:** (SPECIFIC MATERIALS TO AVOID) None known.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Under fire conditions, hydrogen chloride, ethyl sulfide, diethyl sulfide and nitrogen oxides can be formed.

**HAZARDOUS POLYMERIZATION:** Will not occur.

### 11. TOXICOLOGICAL INFORMATION:

For detailed toxicological data, write the address shown in Section 1 or call the emergency phone number.

#### MUTAGENICITY (EFFECTS ON GENETIC MATERIAL):

Results of in vitro ("test tube") and animal mutagenicity tests on the aromatic solvent have been negative. Based on a majority of negative data and some equivocal or marginally positive results, chlorpyrifos is considered to have minimal mutagenic potential.

### 12. ECOLOGICAL INFORMATION:

For detailed ecological data, For detailed toxicological data, write the address shown in Section 1 or call the emergency phone number. Chlorpyrifos is toxic to fish and aquatic organisms.

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### 13. DISPOSAL CONSIDERATIONS:

**DISPOSAL METHOD:** Do not contaminate food, feed, or water by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of according to label instructions, contact your State Pesticide or Environmental Control Agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

### 14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or contact your Dow AgroSciences representative.

### 15. REGULATORY INFORMATION:

**NOTICE:** The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

#### U.S. REGULATIONS

**SARA 313 INFORMATION:** This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>CONCENTRATION</u>
XYLENE (MIXED ISOMERS)	001330-20-7	47.3 %

**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard  
A delayed health hazard  
A fire hazard

**TOXIC SUBSTANCES CONTROL ACT (TSCA):** All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

**STATE RIGHT-TO-KNOW:** The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>LIST</u>
XYLENE (MIXED ISOMERS)	001330-20-7	NJ1 NJ2 NJ3 PA3 PA1
CHLORPYRIFOS	002921-88-2	NJ3 PA1 PA3

NJ1=New Jersey Special Health Hazard Substance (present at greater than or equal to 0.1%).

NJ2=New Jersey Environmental Hazardous Substance (present at greater than or equal to 1.0%).

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

**OSHA HAZARD COMMUNICATION STANDARD:** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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### NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

#### RATINGS:

Category	Rating
Health	2
Flammability	2
Reactivity	1

**COMPREHENSIVE ENVIRONMENTAL RESPONSE  
COMPENSATION AND LIABILITY ACT (CERCLA, or  
SUPERFUND):** This product contains the following  
substance(s) listed as "Hazardous Substances" under  
CERCLA which may require reporting of releases:  
Category:

Chemical Name	CAS#	RQ	% in Product
Chlorpyrifos	002921-88-2	1	44.9%

RCRA Categorization Hazardous Code:  
Xylene U239

### 16. OTHER INFORMATION:

#### MSDS STATUS:

Revised to reflect company name change

**EPA Registration Number:** 62719-220

The Information Herein Is Given In Good Faith, But No  
Warranty, Express Or Implied, Is Made. Consult Dow  
AgroSciences For Further Information.